



# **NASA PROJECT MANAGERS MASTERS FORUM #8**

**“ESSENTIAL, TIMELESS PROJECT PRINCIPLES”**

Project Management Presentation by Tony Spear

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# HOW THE PRESENTATION TITLE WAS GENERATED

- My candidate topics for this talk were:
  - Deep Space Project Management - 1960's until now
  - Project Management Lessons Learned
  - How the Air Bags and Rovers Got Started
    - The Mars Pathfinder Management Story
  - Mars Pathfinder vs. MER's Project Management Approaches
  - Discussions on my presentation content led to the title – I'll tell you about it
  - And I was told to tell stories



## **BOTTOM LINE: GOOD PROJECT MANAGEMENT HAS NOT CHANGED IN ITS BASIC PRINCIPLES**

- It's been the same throughout the ages
- And there's no magic
- It's just hard work by a good team
- The principles have been around forever and are simple and everyone knows them
- All projects use the same principles – Story # 1
- But it's in the execution that counts – Story # 2



# MANAGEMENT FADS

- As long as I can remember project management consultants have made lots of \$\$\$ coming up with new management techniques or fads
- Some are helpful, but how many have really lasted? How many can you remember?
- The best have dealt with business strategies, inventory management, project to customer relationship, etc., Japan benefited from these



# GOOD PROJECT MANAGEMENT ASSISTS

- Computer Aided Project Management and Design
  - Templates for project plans, schedules, cost
  - Electrical, mechanical, other design tools
  - Helps supplying yet another metric for management
- Test Beds – Story # 3
- JPL's Team X
- JPL's Project Practices and Design Principles – Story # 4
- Advanced Technology – powerful flight computers, memory, other microelectronics, hi rate Comm



# WE STILL DO ONE OF A KIND DEVELOPMENTS

- Some Multi-Mission Equipment Exist
- Most Missions Require Much Tailoring
- Risk = tailoring, increasing mission scope and emphasis on low cost and tight schedule
- Need better program planning including key technology development – Story # 5



# ESSENTIAL, TIMELESS PROJECT PRINCIPLES

- Get a good Project Manager, a leader
- Get good people, motivate them to team, empower them,  
a mix of experience and youth – Story # 6,7,8  
99% of the job
- Understand the job, generate a good WBS, then move out



# ESSENTIAL, TIMELESS PROJECT PRINCIPLES CON'T

FROM THE ABOVE COME EVERYTHING ELSE

- Project plans, schedules, cost estimates
- Mission Assurance
- Mission Design and Flight Ops planning
- Risk Management plans
- System and Subsystem Engineering
  - Req's flow down, compliance matrix
- Concurrent Engineering
- Peer Review
- Early Test Bed Tests
- Significant System Test Time
- Test, Test, Test
- Train, Train, Train,
- External review and outreach



# GOOD PROJECT MANAGER CHARACTERISTICS

- They come in all sizes, colors and genders
- Most are born project managers. It comes natural to them
- Some are loud, some are quiet
- Some are dominating, show persons
- Others are more quiet, people oriented
- All are thrilled by, live for challenge
- All are able to lead, get results
- All can articulate their plans, directions, status, problems and resolutions. They are forthright and honest
- All are able to make decisions with imperfect data
- All are able to cut to the chase, work around obstacles, get things done quickly
- All think of themselves as captains of their own ships
- All look beyond their immediate responsibility to detect external threats



# BEST WAYS TO TRANSMIT LESSON LEARNED

- Going to a project with live experience from another project
  - Made possible with shorter duration missions
- Sharing experiences with those from live projects
- Using practices and principles incorporating lessons learned
- Reading about lessons learned